LaCie blue eye

User Guide

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Contents of the LaCie blue eye package

- 1 LaCie blue eye sensor
- 1 Signal Cable with a USB extension to use with a LaCie electron19blue II, electron22blue or electron22blue II
- 1 "Color CD"

System Requirements

- Apple Macintosh G3 or G4
- One USB port on the back of the CPU for the hardware calibration of an electron19blue II, electron22blue or electron22blue II
- One additional USB port on the keybord or on an external USB hub in all cases for the sensor connection
- Apple Macintosh OS 9.x

Foreword

Congratulations on your purchase of a LaCie **blue eye** calibrator. This manual will help you:

- install your new device properly,
- put it into operation,
- learn rapidly how to operate it.

This manual also contains explanations about the latest interfaces.

Icons

Indented paragraphs have an icon indicating the type of information being given.

 *Note*

 *Technical information, news.*

 *This icon indicates a potential hazard. You should read the warning.*

A quickstart to blue eye

blue eye provides four very important functions for your color display system. These functions are *Calibration, Room lighting compensation, Matching to another monitor,* and *Profile generation*.

Calibration

- blue eye sets the monitor white to an accuracy beyond visual discernment.
- blue eye adjusts the monitor gray tones to eliminate color casts.
- blue eye gives you control of the white-point and gamma settings.

Room lighting compensation

- blue eye measures the ambient room lighting and adjusts your monitor to provide maximum visibility of shadow detail.
- blue eye provides manual control over ambient correction for special situations.

Matching to another monitor

- blue eye matches the white of your monitor to a Reference monitor.
- blue eye matches the gray tones of your monitor to that of the Reference monitor.
- blue eye matches the luminance of your monitors at a black point and at full white to that of the Refe-ence monitor.

Color-management profile

blue eye *builds a ColorSync (ICC) profile of your monitor which is usable by color management systems and PhotoShop for color matching.*

Calibration

About color and calibration

Color, in imaging, begins with white. The white of the paper gives its color to all the inks, dyes, and colorants applied to it. Thus, the white of the paper has a strong impact on the final color of the print.

Today, color editing is done on computer displays. But in order for the printed result to look like the image on the screen, the white of the screen must match the white of the paper. Making this correction requires calibration of the monitor.

Calibration is the adjustment of your monitor to a standard setting. Calibration is important because monitors are not set to any standard by the manufacturer. Since monitors may be shipped with different color settings, an image on one monitor can look very different from the same image on another monitor. Calibration sets your monitor display to a standard color setting which you may select.

Usually, monitors are calibrated to display a specified “white point” or color temperature. This setting is usually performed at full-scale white, i.e. at a color value of (256, 256, 256). However, it is just as important that the white color temperature be maintained through lower luminance levels from 0-255. These are the gray tones and include black. If the RGB mixture at white is not maintained through the grays, color casts will appear in the image and the print will not look like the screen. **blue eye** measures the display at white, at black, and at sixteen steps in the gray. The color temperature of white is set and enforced at these points and all points between.

The difference between software and hardware calibration

Three popular methods of calibrating a monitor are using generic ColorSync™ profiles, customizing these profiles with software, or creating profiles with a colorimeter. However, these 3 methods treat the imbalances that can occur in every monitor as a given and do not try to change them. They only try to work around this problem by tweaking the signal from the CPU. Unfortunately, while this method improves the color accuracy, it also reduces the gamut of the monitor. These three techniques, even when using a piece of hardware (a colorimeter) are called software calibration as they do not correct the way the monitor work bu only create a piece of software, an ICC profile, to compensate for the monitors defaults.

The **blue eye** has a completely different approach: it carries out hardware calibration through a unique video cable that uses the DDC 2bi VESA standard that authorizes a two-way flux betwwen the Macintosh and the electron22blue monitor. Unlike a standard video connection, which is a one-way flux from the Macintosh to the monitor, this specific connection enables the monitor and the CPU to exchange information, allowing to calibrate the three Red, Green and Blue gun of the monitor individually inside the monitor.

About Gamma

But there is another factor important to image appearance, the image "gamma." Gamma is the measure of contrast of an image. The higher the gamma, the more "vibrant" and "lively" the image will appear. Images with low gamma appear flatter. You can examine the effect of changing gamma by adjusting the *Picture* (or *Contrast*) control on your TV set.

The significance of gamma in computer imaging has to do with matching the monitor display to the original. If an image with a gamma of 2.2 is displayed on the monitor at a gamma of 1.8, the image will appear flat. You will edit the image to restore its lost contrast only to find, when you print it out, that you have miscorrected. The problem was with the monitor setting, not the image data.

Thus, the second important part of computer image editing is matching gamma. Television has a specified gamma of 2.2, so editing or preparing an image for TV replay should use this setting. Computer games and computer-generated art/drawings probably were created under a gamma of 2.5 to 2.8. The gamma of scanned input depends on the source and setup of the scanning plug-in.

The issue of black and white luminance

There are two other settings which affect monitor appearance, black luminance and white luminance. Basically, these are the brightness of the monitor with the electron-guns turned all the way off (black point luminance) and the brightness of the monitor with the electron guns turned all the way on (white point lumi-nance). These two settings define the endpoints of the color curve for the monitor and greatly affect appearance. It is possible to calibrate two monitors to the same color temperature and balance the grays, but if the black and white luminances don't match, the monitors will appear different.

Black luminance also affects visibility of shadow detail. If the monitor is adjusted too low, shadow detail will disappear; if it is too high, midtones will be too bright.

The brightness control knob on the monitor has the most effect on black luminance while the contrast control has the greatest effect on white luminance. Both these settings, brightness and contrast, however, interact. Thus setting contrast greatly affects white luminance but it also affects black luminance to some degree. The same is true for brightness on white luminance. **blue eye** measures both black and white luminance and aids you in adjusting brightness and contrast.

The effect of the ambient light

Room lighting, also called *"ambient" lighting*, greatly affects the visibility of shadow detail in an image. The eye will see much more image detail in darkly lit surroundings than in a brightly lit environment.

blue eye provides compensation for the effect of ambient light so that the level of detail visibility is enhanced. **blue eye** measures the amount of light striking the screen and adjusts the gamma setting accordingly to increase brightness in the shadows.

About the calibrator

The **blue eye** calibrator is a precision measuring instrument consisting of a "pod" and a cable. The cable connects to your Macintosh. The pod contains three color sensors for measuring the Red, Green, and Blue light from the monitor. The pod also contains a fourth sensor that synchronizes the measurements of the color sensors to the refresh of the screen. An 8-bit RISC microprocessor processes the raw data from the sensors and controls all communication with the host Macintosh via the USB.

How blue eye works

Hardware calibration

When calibrating a LaCie electron19blueII, electron22blue or electron22blueII, the **blue eye** operates hardware calibration via the specific video cable equipped with a USB connector. The **blue eye** driver in the Macintosh displays color patches of known values on the monitor. The calibrator measures the color produced by the monitor and the software uses these measurements to calculate the error in the monitor's color display. The **blue eye** driver then adjusts the Red, Green and Blue guns inside the monitor . It then remeasures the same color patches to create a ColorSync profiles if configured to do so.

Software calibration

On any other monitor the **blue eye** operates as software calibration. The use of the specific video cable is not necessary. The **blue eye** driver in the Macintosh displays color patches of known values on the monitor. The calibrator measures the color produced by the monitor and the software uses these measurements to calculate the error in the monitor's color display. **blue eye** then calculates a correction factor for the displayed color and sends this data to the graphics card. The corrected data in the graphics card then produces a calibrated color display.

In both cases

blue eye measures the monitor display at total black, full white, and sixteen steps of gray. Each of these levels is then balanced to the color temperature of white and the values saved. A curve is mathematically constructed to fit the eighteen points for each color (red, green, blue).

Colorsync profiles

blue eye creates ColorSync profiles whenever the screen is measured successfully and you return to the *Main Screen*.
The ColorSync profile is given the name "*blue eye*" and stored in your system's ColorSync profiles folder.

Monitor matching

In today's color imaging world, the person who creates an image often is not the only person to view or work the image. Work groups, remote creators like agencies, and the Internet all present this situation. People working on the same imaging project may have totally different monitors and viewing conditions. In these cases, calibration to the same white point and gamma is not sufficient. Since different monitors have different characteristics, it is necessary to match the display characteristics of these monitors to insure the same color appearance.

The best results will be obtained when matching two monitors of the same make. Even greater consistency will be obtained if the match to reference process is based on a hardware calibration for both the reference and the target monitors.

blue eye makes matching the display appearance of two or more monitors possible. To do this, one monitor (the monitor to be matched) is designated the Reference monitor. The monitor to be matched to the Reference monitor is called the Target monitor.

A Reference monitor is represented within **blue eye** by a data file of that monitor's characteristics – the R, G, B values for eighteen color measurement values, and the luminance values for white and black. This data file completely defines the appearance of color on the Reference monitor.

blue eye matches the Target monitor to the Reference monitor by calibrating each measurement point of the Target monitor to each measurement point of the Reference monitor.

Since brightness of the white and black points is critical to the color appearance of the display, **blue eye** asks you to adjust brightness of the Target monitor black and white points to the values measured for the Reference monitor. **blue eye** measures the white/black luminance of your monitor and compares it to that of the Reference. **blue eye** then displays an indicator to tell you how much to adjust the monitor control to achieve the Reference value. Once these controls are properly set, the Target monitor will match the Reference monitor within the tolerance of the display card capabilities.

Proper selection of a Reference monitor may make some matching situations easier to achieve. Selecting the brightest and "best" monitor may make it impossible for less capable monitors to match. It is common that older, larger monitors cannot achieve the brightness of newer, smaller screens. Thus, the selection of the Reference should favor that which is most easily matched, not that which is the highest performer. **blue eye** will let you know during the matching process if the Target monitor can achieve the luminance settings of the Reference. If it cannot, recreate the Reference file using the Target monitor and match the previous reference monitor to it.

Installing the blue eye

Step 1

Insert the CD and click on the **blue eye** installer icon to install in your system the required USB extensions and to copy the application on your hard drive.

Step 2

Shutdown your computer (do not operate a restart) and switch off your monitor.

Step 3

If you do not already have a LaCie video cable equipped with a USB connector, disconnect your current video cable from the back of the CPU and from the back of the monitor.

Connect the end of the LaCie cable, which *does not* have a USB extension to the back of your LaCie monitor.

electron22blue II: ~~signal-A~~, signal-B

Note: if you are using a LaCie electron22blueII use the signal-B connector on the back of your monitor. The signal-A connector does not support hardware calibration.

Step 4

Connect the other end of the video cable to the video port on the back of your CPU. Connect the USB end of the video cable to one of the two USB ports on the back of your CPU.

Note: if your are not using a LaCie electron19blueII, electron22blue or electron22blueII, you do not need to use the specific video cable equipped with a USB end. This cable is only required by the blue eye to operate a hardware calibration, which the blue eye can not achieve on other monitors.

Step 5

Connect the **blue eye** sensor to an available USB port for example on your keyboard or on an external USB hub.

Step 6

Launch the **blue eye** application either from the alias created on your desktop or the **blue eye** control strip.

The "Init"

blue eye includes a startup application, sometimes called an *"Init"* short for initialization. When the Mac powers-up, it looks in the startup folder of the system folder and executes all programs that reside there. **blue eye** stores a small startup program there that initializes the graphics card to the values last saved from calibration. Before the init runs, however, **blue eye** checks to see if the monitor settings are correct. If the monitor is set to 256 colors, **blue eye** will display an error message and will not restore the previous calibration data.

The Startup Screen

As soon as you double-click the **blue eye** icon to launch **blue eye**, the MacOS starts the process of loading the software and starting **blue eye**. When **blue eye** gains control of the system, it performs several "requirements" tests before displaying the *Main Screen*.

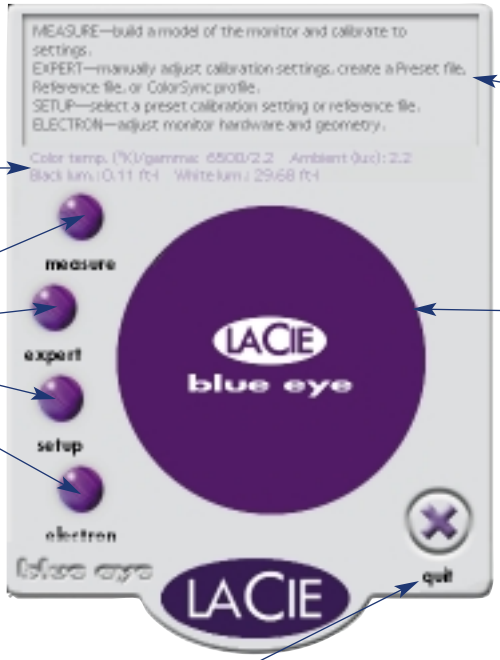
First, **blue eye** checks for connection of a calibrator. If one is not found, an error message is displayed. **blue eye** will run, however, and allow you to use those functions that do not require a calibrator.

blue eye also checks the monitor settings. The monitor must be set to display either "thousands of colors" or "millions of colors." A set-ting of "256 colors" is inadequate. **blue eye** will display a message and terminate.

The Main Screen

The first screen displayed, and the root screen of the system, is the *Main Screen* (Figure 1). All function screens originate with the *Main Screen* from which you can choose to measure your monitor or ambient lighting, change the calibration setup or preferences, or manually change a setting.

Note: the first time blue eye is launched, it has no data about your screen to use for calibration. Therefore, the first time blue eye is run and the first time only, blue eye will display only one button – the Measure Button. A message in the Operator Guide Panel tells you that this startup condition is in effect and that you must measure your screen before you can perform any other functions.



Information
Display current color and gamma information of the monitor in use.

Actions Buttons
These buttons take you to other screens within **blue eye**

Data Display Panel
This panel displays data from the last measurements about color temperature, gamma, and ambient lighting.

Circle
The black circle is present on every measurement screen. It is :
- where the calibrator is mounted during measurement.
- used to display targets for adjustment of brightness.

Quit / Back Button
On the MAIN screen, this button exits from ProColor and returns to FINDER. ON other screens, this button is labeled "BACK" and returns to the previous screen (this is difficult to read when it runs across both side of the image).

Figure 1 – The Main Screen

The Measure Screen

Overview

The main function of **blue eye** is to measure and calibrate your monitor. Pressing the *Measure Button* on the *Main Screen* takes you to the *Measure Screen* shown in Figure 2. From this screen, you can continue to measure and calibrate your display or you can adjust for room lighting.

Choosing *Calibrate* takes you down the path of measurement by the calibrator. A ColorSync profile (if that preference is selected) is created when you return to the *Main Screen*.

Adjust brightness

When performing a hardware calibration, this operation will be automatically preocessed by the **blue eye** at the monitor level.

When operating a software calibration, before you press *Calibrate Display*, you should use the target presented in the black circle to adjust brightness and contrast. When the *Measure Screen* is displayed, you will notice a definite change in contrast on the display. Most of the time, the display will seem brighter. **blue eye** has set the gamma of the display to *native* which means the monitor has no correction applied to it; this is its natural state.

With the lights out, the innermost ring should be just barely visible. If it is not (see Figure 3), turn up the brightness control on the monitor until the ring is just barely visible. If the innermost ring is extremely visible (see Figure 4), turn down the brightness control until it is just visible.

If the rings are always too visible or too dark, leave the brightness control at its lowest/highest setting. Call your monitor repairman. Your monitor needs internal adjustment. If the monitor is too dark, **blue eye** may not be able to achieve an accurate calibration.

blue eye does not provide a target for adjustment of contrast. Modern monitors are engineered to display distinguishable highlight detail with the contrast control at its maximum setting so set contrast to its maximum and leave it there unless you need to change it to match to another monitor.

Measuring the display

When you click on *calibrate display*, **blue eye** asks you to mount the calibrator to the screen. IT IS IMPORTANT THAT YOU CLEAN THE SUCTION RING WITH AN ALCOHOL WIPE OR SOME SIMILAR TREATMENT IN ORDER FOR THE CALIBRATOR TO ADHERE WELL TO THE SCREEN. Pressing *continue* starts the measuring.

Eighteen values of gray are measured including absolute black and full white. At the end of the measurement cycle, **blue eye** checks to see if you are calibrating to a *preset* or *matching-to-reference*. If you are using a preset, you are done. **blue eye** displays the calibration data for color temperature and gamma in the Display Panel area. Since new measured data for the monitor now exists, any previous corrections for ambient light is invalid. **blue eye** ignores any existing ambient correction and you should remeasure ambient, if you choose to apply this correction. Press *back* to return to the *Main Screen*. **blue eye** creates a ColorSync profile named "**blue eye**" in the ColorSync profile folder in *System/Preferences*.

Figure 2 – The Measure Screen

Matching to a reference

If you were in a *Match-to-reference* condition, at the end of the measurement process, **blue eye** will display a message in the Operator Guide panel noting that you had chosen to match a reference. In case of a software calibration, you should keep the calibrator attached to the screen and now adjust brightness and contrast to match the settings of the reference.

blue eye will first display a black patch and measure its brightness. A needle indicator is displayed in the circular progress bar. You should adjust the brightness control up or down to get the needle into the red, target area. Press *Measure White* to continue.

Now adjust the contrast control until the needle once again sits within the target zone. Since adjusting contrast affects the black point setting, you may wish to remeasure and readjust brightness. Click *Measure Black* to do this. After you gain experience with your monitor, you will know whether readjustment of the controls requires remeasurement or not.

To end the set black/white loop, press *Accept Settings* and **blue eye** will return to the *Main Screen*. You are done.If you had been unable to adjust brightness and/or contrast to get the pointer into the target zone, your match may be close enough to use. There are no absolute rules for this condition, but errors on the order of ten percent of the match luminance should leave a usable match. Errors of more than ten percent are questionable. In any case, you should reverse the target and reference monitors, using the old reference as the target and the old target as the new reference. This allows the monitor with the greatest dynamic range (the old reference) to match the less capable monitor (the old target).

Room Lighting

Overview

You may wish to check for room lighting conditions. Clicking the *Room Lighting* button takes you to the Room Lighting Screen. The gamma of the monitor is reset to the value you have chosen.Turn the room lights back to normal and check the circular targets now. If you can still see the innermost ring, you do not need any adjustment. If you cannot see the inner circle, use the ambient compensation feature of **blue eye**.

Room Lighting adjusts the contrast curve of the monitor as a function of the illumination in the room. This adjustment increases the brightness levels in the dark regions of an image by decreasing "gamma". Using this adjustment will, therefore, alter the appearance of an image without altering its data. The image, therefore, will produce the same output for shadow detail even though the image looks more visible on the screen.

Use this function only to improve the image for screen editing and eliminate any ambient compensation to make image/color judgments. Adjusting for room lighting will not alter or destroy a match-to-reference setting.

Calibrator measurement

To adjust for ambient light by measuring with the calibrator, hold the calibrator with the suction cup facing into the room and the back of the calibrator against the screen. Point the calibrator toward the major source of light on the room. Try to position the sensor aperture so that is captures the most prominent stream of light that strikes the monitor. This operation is not critical to accuracy and may be redone several times to get an acceptable result (visible rings on the target).

Press *Measure* and **blue eye** measures the amount of light striking the calibrator. **blue eye** raises or lowers the contrast curve of the monitor accordingly. It takes a few seconds for the measurement to complete. You may make as many measurements as you wish, pointing the calibrator at different spots and sources. Click *Return* to return to the *Main Screen.*

Manual ambient compensation

Navigate to the *Expert Screen*. Move the Ambient slider to the position you desire. **blue eye** adjusts the monitor to the setting of the slider upon release of the slider.

As an aid in adjusting lighting compensation, **blue eye** provides a gray ramp of dark values. Optimum adjustment occurs when you can just see the step between the two leftmost bars. Press *Back* to return to the *Main Screen*.

The Setup Screen

Overview

The *Setup Screen* allows you to select calibration modes and to set operational preferences. **blue eye** provides two different calibration modes, calibrate to a *Preset* or calibrate to a *Reference*. A *Preset* is a file that specifies the color temperature and gamma for the monitor. A *Reference* is a file of data about another monitor. **blue eye** will use this data to match your monitor to the *Reference* monitor.

The *Setup Screen* also displays preferences for you to select regarding measurement units and ColorSync profiles.

Presets

A pulldown is provided which displays the list of available *Presets*. *Presets* have names to make it easier to understand their use and content. For example, the US publishing standard of D50 color temperature and 1.8 gamma is stored in a **blue eye** *Preset* file named *Publishing*.

Since **blue eye** has saved the color measurement data about your monitor, it can recalibrate your monitor to any color temperature and gamma at any time by simple mathematical calculations. Thus, selecting a *Preset* from the pulldown list immediately recalibrates your screen to the new parameters.

If you were in a *Match-to-reference* condition when you selected the *Preset*, **blue eye** will warn you that you are about to lose the "match". You may proceed or cancel calibration to the *Preset*, depending on your intent.

There are two special *Preset* files in **blue eye**; one is called *Custom* and the other is called *Native*. *Custom* contains the last setting of the color temperature slider and the gamma slider in the *Expert Screen*. *Native* contains the settings of the monitor with no calibration applied. Clicking *Native* sets the monitor to its uncorrected ("native") state.

You can create your own calibration *Presets* by using the *Expert Screen*.

Match-to-reference

If you select a reference file, **blue eye** matches your monitor to the data in the file. this is done on a point-by-point basis with each data point in the file. Thus, the color value of your monitor at full white is mapped to the color value of the reference at full white, the color value of your monitor at 95% white is mapped to the color value of the reference monitor at 95% white, and so forth. this mapping happens instantaneously.

When the color mapping is complete, **blue eye** asks you to match the luminance of your monitor to that of the reference. Attach the calibrator to the screen and press *Measure Black*. A black patch is displayed and measured by **blue eye**. Displayed in the Data Display panel are the luminance value of your screen and the luminance value of the reference. A needle pointer is also displayed in the circular arc and a red target area is highlighted. *Adjust the brightness control* until the pointer is in the red target area.

Press *Measure White*. A white patch is displayed and measured by **blue eye**. The luminance values of this measurement are also displayed. *Adjust the contrast control* until the pointer is in the red target area.

You may readjust brightness and contrast repeatedly until you are satisfied with the settings (see *Measure / Match-to-reference* for another explanation of the white / black adjustment process).

Match-to-reference disables the color temperature and gamma sliders in *Expert* to prevent accidental modification of the reference settings. The Lighting Compensation slider remains active.

Preferences settings

blue eye also allows you to:

- select your preferred display units for data, either Foot-Lamberts or Candela / m2.
- enable / disable creation of a ColorSync profile. When blue eye starts-up, it checks the ColorSync control panel to see if ColorSync is turned on. If it is, the ColorSync check-box in *Setup* is enabled. If Color-Sync is not on, the check-box is grayed-out.
- turn on / off the display of values in the Data Display panel on each screen.

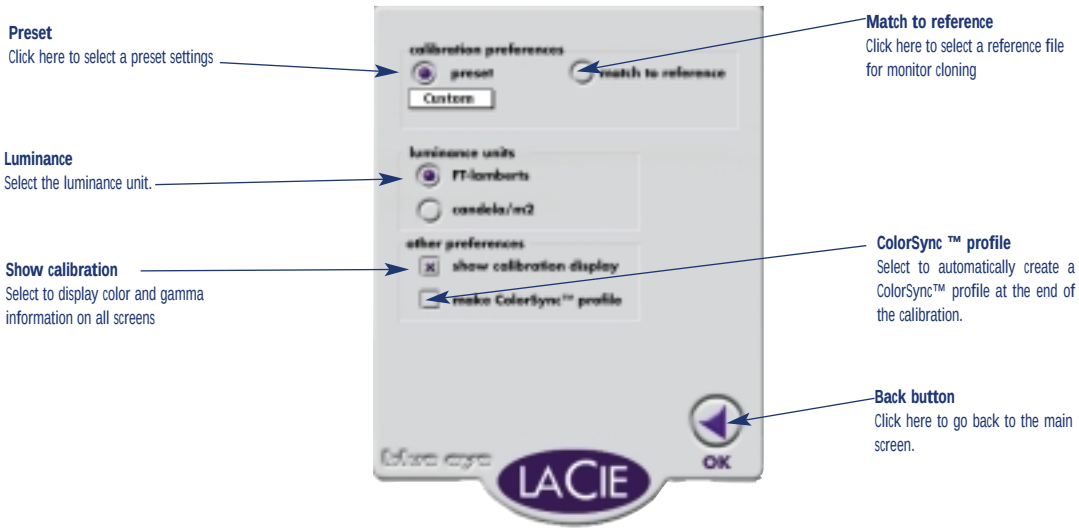


Figure 3 – Room Lighting

The Expert Screen

Overview

Expert provides manual control (via sliders) over three different functions – Lighting Compensation, Color Temperature and Gamma. Clicking on any slider bar moves the pointer to the next detent. Clicking the arrow increments the pointer by a value specific to that control. Expert also displays the values of the color temperature and gamma settings. Buttons are provided for creation of new Preset and Reference files (this is difficult to read across the image).

Lighting compensation

The *Lighting Compensation* slider increases the amount of correction for bright rooms. A gray ramp is provided as a visual aid for proper adjustment.

Color temperature and Gamma

Color Temperature and *Gamma* may also be adjusted.

Note: in Match-to-Reference mode, the sliders are disabled.

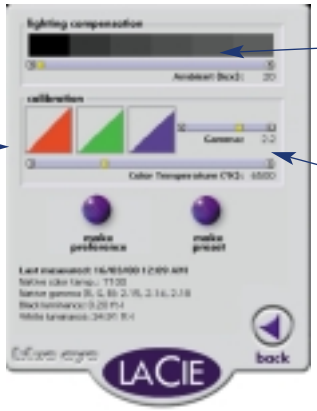
The curves loaded into the graphics card to create the color temperature or gamma are shown in the RGB triangles. The state of the sliders is always saved in the *Custom* preset when you exit *Expert*.

Make reference

You can create a reference file for others to match to your monitor. Click the *Make reference* button and **blue eye** asks you to mount the calibrator to the screen. **blue eye** then measures your screen. A dialogue box appears for you to type the file name for the reference. When you click *Save*, **blue eye** saves the color data as well as black and white luminances in the reference file for use during matching.

Make preset

You can create a reference file for others to match to your monitor. Click the *Make* preset button and **blue eye** displays a dialogue box for you to enter the name of the preset file. Upon clicking *Save*, **blue eye** saves the color temperature and gamma values in the preset file.



Room Lighting gray-ramp
Use this to visually evaluate lighting setting. Darktest steps sould be just visible.

Contents of DACs
Actual contents of graphic card DACs as loaded by **blue eye**

Color Temperature and Gamma sliders

Calibration Data
Detail data about monitor from last measurement

Figure 4 – Expert Screen

The Electron Screen

Overview

When connected to a LaCie electron19bluell, electron22blue or electron22bluell, the LaCie video cable equipped with 2 HD-15 connectors and 1 USB connector allows the digital control of these monitors settings.

Instead of using the OSD (On-Screen-Display) available through the buttons on the front panel of the monitor all color, geometry and image settings can be adjusted digitally for a better ease-of-use and accuracy.

Color

These settings should not be adjusted if the monitor is calibrated. Any modification of these settings will invalidate the calibration.

GROUP ICON	ITEM ICON	ITEM	FUNCTIONS
		CONTRAST	Adjusts the contrast level
		BRIGHT	Adjusts the black level of the screen
		COLOR NO	Select the desired color from Color 1, Color 2, and Color 3 presets
		R-GAIN	Adjusts the red-color balances for the selected color
		G-GAIN	Adjusts the green-color balances for the selected color
		B-GAIN	Adjusts the blue-color balances for the selected color
		COLOR TEMPERATURE	Adjusts the color temperature of the image on the screen
		COLOR RESET	estores each color gain and color temperature to the factory preset

Geometry

GROUP ICON	ITEM ICON	ITEM	FUNCTIONS
		HORIZ-SIZE	Adjusts the horizontal size of the image on the screen
		HORIZ-PHASE	Adjusts the horizontal position of the image on the screen
		VERT-SIZE	Adjusts the vertical size of the image on the screen
		VERT-POSITION	Adjusts the vertical position of the image on the screen
		PINCUSHION	Straightens the left and right sides of the image on the screen
		KEYSTONE	Adjusts the parallelism of the left and right sides of the image on the screen
		TOP-PIN	Adjusts the pincushioning at the top corners of the screen
		BOTTOM-PIN	Adjusts the pincushioning at the bottom corners of the screen
		PIN-BALANCE	Adjusts the curvature of the left and right sides of the image on the screen
		KEY-BALANCE	Adjusts the vertical slant or tilt of the screen image
		VERT-LIN-BALANCE	Centers the linearity of the vertical axis of the screen
		VERT-LIN	Adjusts the linearity of the vertical axis of the screen
		ROTATION	Adjusts the rotation of the image on the screen.
		ZOOM	Zooms the screen to all sides
		GEOMETRY RESET	Restores to the factory preset level

Image

GROUP ICON	ITEM ICON	ITEM FUNCTIONS	
		FINE PICTURE MODE	Selects the status which provides the most pleasing image
		HORIZ-CONVERGENCE	Adjusts the horizontal alignment of the red, green and blue beams
		VERT-CONVERGENCE	Adjusts the vertical alignment of the red, green and blue beams
		CORNER PURITY(TL)	Adjusts the purity of the top-left corners of the screen
		CORNER PURITY(TR)	Adjusts the purity of the top-right corners of the screen
		CORNER PURITY(BL)	Adjusts the purity of the bottom-left corners of the screen
		CORNER PURITY(BR)	Adjusts the purity of the bottom-right corners of the screen
		MOIRE CANCEL	When setting to ON, the moire level on the screen can decreased by the MOIRE CANCEL LEVEL
		MOIRE CANCEL LEVEL	Adjusts the moire level on the screen
	CLAMP	CLAMP PULSE POSITION	Uses this function to eliminate excessive green or white background that may occur when both Sync-On-Green and external sync signals are applied to the monitor
	VIDEO	VIDEO LEVEL	Selects video level 1.0V or 0.7V. (0.7V Standard)
		DEGAUSS	Eliminates possible color shading or impurity
		POWER-SAVE	When setting to ON, the power consumption of the monitor will be reduced when not in use f your computer is set for power management
		CONTROL LOCK	Locks the OSD function except for "BRIGHT" and "CONTRAST"
		OSD POSITION	Moves the OSD screen position
		ALL RESET	Restores all items to the factory preset level
	GTF AUTO	GTF AUTO ADJUST	Adjusts the screen size and distortion automatically
		DIAGNOSIS	Indicates the current scanning frequency, factory or user preset timing number, and signal input connector
		LANGUAGE	Selects the language used on OSD screen

FCC Information

Information to user

Any changes or modifications made to this device which are not expressly approved by LaCie are prohibited and may void the user's authority to operate this equipment.

General information statement

This device complies with Part 15 of the FCC Rules. Operation of this device is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment causes, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. There is no guarantee, however, that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and then on, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Reorient or relocate the receiving antenna
2. Increase the separation between the equipment and the antenna
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
4. Consult the dealer or an experienced TV/radio technician for help

FCC compiance statement for United States users

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instructions may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult a dealer or an experienced radio/TV technician for help

Changes or modifications not expressly approved by the manufacturer could void the warranty of the user to operate this equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions;

1. this device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

For Canadian users

This Class B digital apparatus complies with Canadian ICES-003.
Cet appareil numerique de la classe B est conforme a la norme NMB-003 du Canada.

For Europen users

This product conforms to the requirements of EC Directives 73/23/EEC and 89/336/EEC.

Declaration of Conformity / Déclaration de Conformité / Erklarung zur einhaltung von Produktnormen:

Sequel Imaging, Inc.

25 Nashua Road, Londonderry, NH 03053-USA

Product Name/ Designation / Produktname:

Sequel Imaging

Model Number / Numéro de modèle / Modelnummer:

Digital Control

Conforms to the following Product Specifications / Satisfait aux spécificatons produit suivantes / Den folgenden Produktspezifikationen enspricht:

EMC: EN 60950 / EN 55022:1994 Class B / EN 61000-4-4:1995 / EN 55024:1998 / EN 61000-4-5:1995
EN 61000-4-2:1995 / EN 61000-4-6:1996 / EN 61000-4-3:1996 / EN 61000-4-11:199